Configuring BayStack and Business Policy Switches with the Preside Network Configuration System

This card summarizes how to get started using the Preside Network Configuration System (Preside NCS) to configure the BayStack and Business Policy Switches (BPS) in your network. This document is intended for network engineers who have some familiarity with Nortel Networks Layer 2 switches.

The Business Policy Switch 2000 requires version 1.2 software. The BayStack 350, 410, and 450 switches require versions 1.3–3.1 software.

Task list

The following summarizes an example of the configuration tasks you can complete using Preside NCS:

- "Configuring the switch IP address"
- "Importing or creating a switch configuration"
- "Adding stack units and media dependent adapters (MDAs)"
- "Configuring ports"
- "Configuring VLANs"
- "Configuring spanning tree groups (STGs)"
- "Configuring an Simple Network Management Protocol (SNMP) trap receiver"
- "Configuring an Extensible Authentication Protocol over LAN (EAP)"
- "Configuring media access control (MAC) security"
- Configuring QoS parameters:
  - "Creating interface groups"
  - "Accepting default mapping values"
  - "Setting up filters"
  - "Maintaining policing statistics"
  - "Allowing or denying packet reordering"
  - "Configuring actions"
  - "Configuring meters"
  - "Configuring policies"
  - "Assigning mapping values"

If you are familiar with the BayStack Console Interface (CI), see the "Mapping Switch Console Interface commands to Preside NCS GUI properties" table to locate the Preside NCS properties that you want to configure.

Each of the above tasks is explained in more detail in the procedures that follow.

Configuring the switch IP address

NOTE: If you have a properly configured BootP server in your network, it detects the switch IP address automatically; you do not need to configure the IP address.

1. Connect a serial console and apply power to the switch. After the Nortel Networks logo screen appears, press [Ctrl]-Y to access the Console Interface (CI).
2. At the CI Main Menu, choose IP Configuration/Setup.
3. Type the in-band IP address or stack IP address, subnet mask, and default gateway of the switch.

   Press [Return] after each entry.

   For a standalone switch, you enter the in-band IP address. For a stack configuration, you enter the stack IP address.

Click Task list to return to the list of tasks.

Importing or creating a switch configuration

You can import existing configurations to the Preside NCS database directly from the switch, or you can create configurations off-line.

1 Use the Configuration menu Import commands to import configuration data directly from a switch. To import data, you specify the switch IP address and community string.

2 Use the Configuration Data Palette to create new standalone switch and stack configurations. The Palette lists switch templates by product group.

NOTE: BayStack and Business Policy Switch devices use SNMP to transfer configuration data; they do not support Trivial File Transfer Protocol (TFTP) or serial import and export.

Adding stack units and media dependent adapters (MDAs)

NOTE: You can add switch units to a stack and MDAs to a unit configuration using Preside NCS. Then, export that configuration to a stack or unit to which you added the corresponding hardware.

Alternatively, you can install the new unit or MDA in the stack or unit and re-import the configuration through Preside NCS. Re-import will then discover the newly installed unit or MDA. It is recommended that you follow this latter method because it is less error-prone.

1 In the navigation pane, select the switch stack.

2 Select the unit type that is to be added to the stack from the Palette tab.

3 Click the Paste button, or double-click the unit type that is to be added to the stack.

4 Select the newly created unit in the navigation pane and adjust the unit number in the Basic tab in the Properties area.

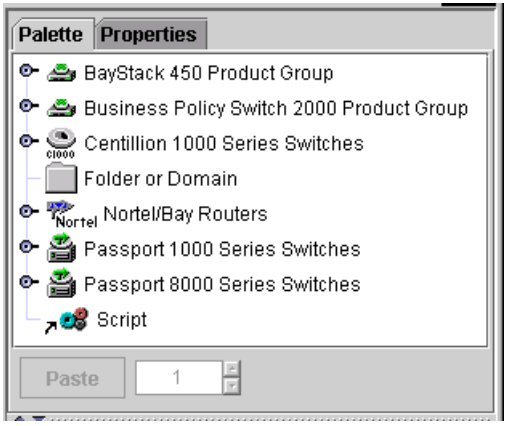
5 Select the newly created unit in the navigation pane and then select the MDA type that is to be added to the new switch unit from the Palette tab.

6 Click the Paste button or double-click the MDA type that is to be added to the switch.

7 Expand the added unit in the navigation pane and then expand the MDA.

8 Select a port under the MDA object in the navigation pane.

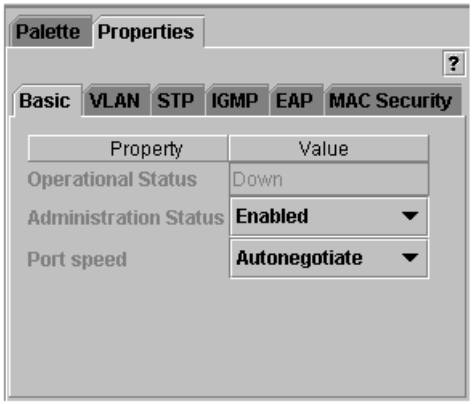
9 Configure Basic, VLAN, STP, and IGMP parameters in the Properties tab as appropriate.



Click Task list to return to the list of tasks.

Configuring ports

By default, all unconfigured ports are untagged links in the default port-based VLAN (VLAN 1), participate in normal learning STP, and autonegotiate line speed.



1. In the navigation pane, expand the standalone switch, stack unit, or MDA to select switch ports.
2. In the Properties tab, choose the Basic, VLAN, STP, IGMP, EAP, or MAC Security tab.

   NOTE: Selecting multiple ports (Ctrl-Click or Shift-Click) and then modifying parameters from the Properties tab changes those parameters for all selected ports.

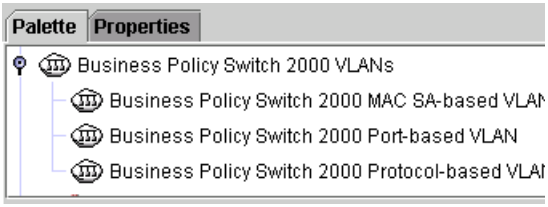
Configuring VLANs

You can configure port-based, protocol-based, or MAC source address VLANs.

1. In the navigation pane, select the device.

   NOTE: Use the device VLANs folder to create VLANs and to configure VLAN ports. The system VLANs folder shows the VLANs configured on all devices in the database.

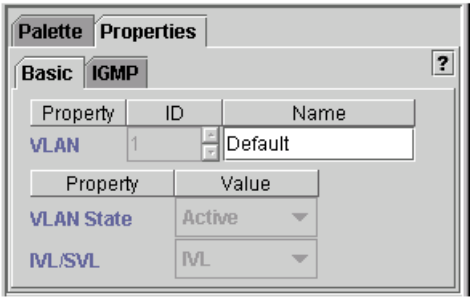
2. In the Palette tab, expand the Business Policy Switch 2000 VLANs folder and double-click on the port-based, protocol-based, or MAC source address (SA)-based VLAN type.


Palette
Properties
Business Policy Switch 2000 VLANs
Business Policy Switch 2000 MAC SA-based VLAN
Business Policy Switch 2000 Port-based VLAN
Business Policy Switch 2000 Protocol-based VLAN

3. In the navigation pane, select the new VLAN. In the Properties tab, type a descriptive name to identify the VLAN.
4. In the navigation pane, expand the switch and select ports to participate in the VLAN.
5. Create shortcuts from the ports to the VLAN.

   Copy the ports, and paste them as shortcuts on the VLAN.
6. In the navigation pane, select the VLAN ports. In the Properties tab, configure the VLAN port properties.

   Click the VLAN tab to display the VLAN port properties.



Click Task list to return to the list of tasks.

Configuring spanning tree groups (STGs)

You can configure from one to eight spanning tree groups.

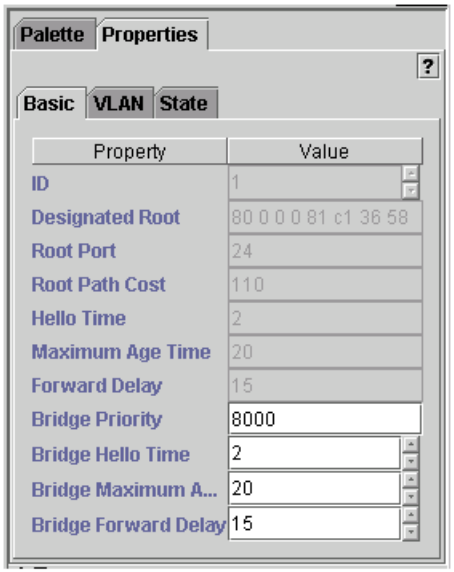
1. In the navigation pane, expand the switch and expand the Spanning Tree Protocol Group.
2. To add an STG, open the Palette tab and drag the Spanning Tree Group icon to the Spanning Tree Protocol Group in the navigation pane.
3. To configure basic STG settings, click on the STG icon and open the Basic tab.

   At a minimum, you must configure the STG ID so that all STG IDs are unique.
4. To add VLANs to an STG, click on the STG icon in the Spanning Tree Protocol Group and open the VLAN tab.

   On the VLAN tab, click the plus sign to add a new VLAN, and enter the VLAN ID.
5. To remove a VLAN from an STG, right-click a VLAN Members number on the VLAN tab and choose Delete.

   You cannot remove the default VLAN from STG 1.
6. To enable or disable an STG, click on the STG and open the State tab.

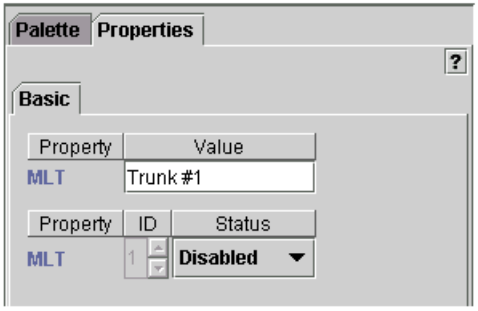
   For the State property, choose either Enable or Disable.



Configuring a multilink trunk (MLT)

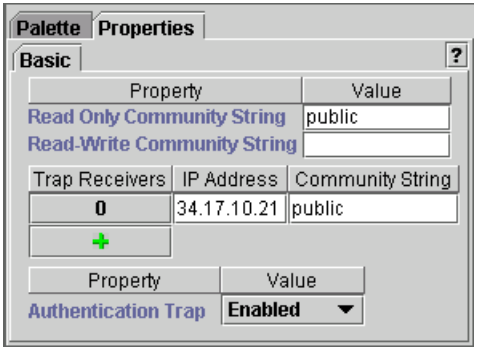
You can configure from one through six multilink trunk (MLT) groups.

1. In the navigation pane, expand the switch and select two, three, or four Ethernet ports.
2. Create shortcuts from the ports to one of the six MLT templates.
3. Copy the ports, and then paste them as shortcuts on the MLT.
4. In the navigation pane, select the MLT.
5. In the Properties tab, type a descriptive name to identify the trunk.
6. From the Status list, choose Enabled.



Configuring an Simple Network Management Protocol (SNMP) trap receiver

1. In the navigation pane, expand the switch and select SNMP.
2. In the Properties tab, click the green plus sign (+) to add an item to the Trap Receivers table.
3. Enter the IP address and community string for each trap receiver.



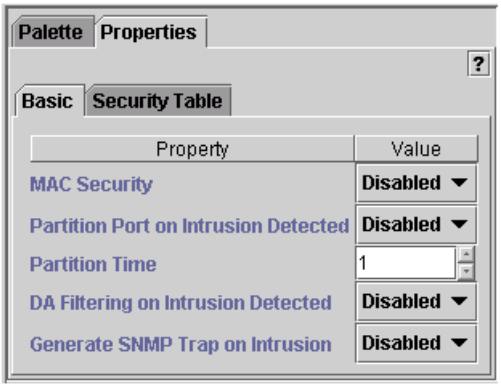
Click Task list to return to the list of tasks.

Configuring an Extensible Authentication Protocol over LAN (EAP)

1 In the navigation pane, expand the switch and select EAP.

2 In the Properties tab, click the Administrative State Value.

Configuring media access control (MAC) security



1 In the navigation pane, expand the switch and select MAC Address Security.

2 In the Basic tab of the MAC Address Security pane, click the MAC Security Value.

3 Enter the property values.

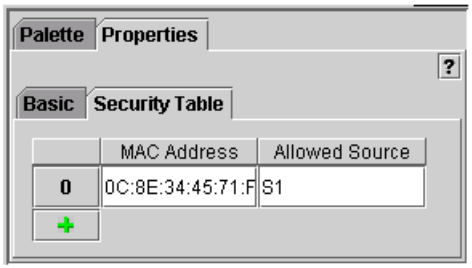
4 Perform the steps in “Configuring the security table,” next.

Click Task list to return to the list of tasks.

Configuring the security table

NOTE: You manually assign ports (Port 1...Port 24) to an entry (S1...S32). You enter the allowed source as an entry. For example, S1.

1. In the Security Table tab of the MAC Address Security pane, do the following:
   a. Click Add row icon.
   b. Enter the source MAC address.

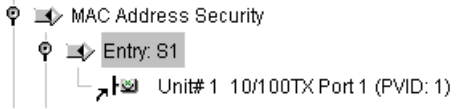


2. In the navigational pane, expand MAC Address Security.

3. Expand a unit, for example, Unit #1.

4. Do the following:
   a. Right click a port.
   b. Select Copy from the popup menu.
   c. Right click Entry: S1.
   d. In the popup menu, click Paste As Shortcut.

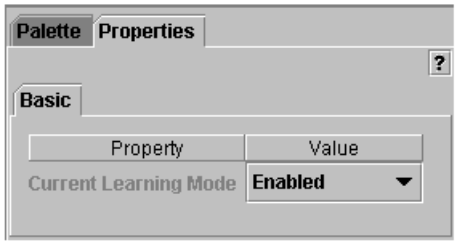
For example Port 1.



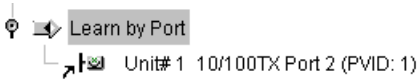
5. In the Security Table tab of the MAC Address Security pane, enter the allowed source.

For example, S1.

6. To use the Learn by Port feature, do the following:
   a. In the navigational pane, expand MAC Address Security.
   b. Click Learn by Port.
   c. In the Properties tab, select the Current Learning Mode property value.
   d. Expand a unit, for example, Unit #1.
   e. Right click a port.
   f. Select Copy from the popup menu.
   g. Right click Entry: S1.
   h. In the popup menu, click Paste As Shortcut.



7. In the popup menu, click Paste As Shortcut.



Click Task list to return to the list of tasks.

Creating interface groups

NOTE: Nortel Networks does not allow this action from NCS, because to complete the configuration, the switch must be reset. If the switch is reset, the SNMP connection to the switch is dropped. In this case, export of the configurations is interrupted.

Accepting default mapping values

To manually configure the mapping among 802.1p priority values, priority, and DSCP mapping, you must use with the following QoS Advanced pages:

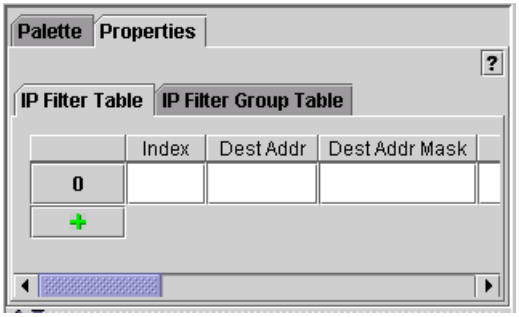
- Assigning 802.1p priority queue assignment
- Verifying DSCP mapping
- Assigning 802.1p user priority mapping
- Verifying DSCP queue assignments

NOTE: Nortel Networks does not allow this action from NCS, because to complete the configuration, the switch must be reset. If the switch is reset, the SNMP connection to the switch is dropped. In this case, export of the configurations is interrupted.

Setting up filters

1 In the navigation pane, expand the switch and select QoS > IP Classification.

2 Click the IP Table Filter tab.



3 In the Indices box, enter the value.

4 For the destination network address, do the following:

a. In the Dest Addr box, type the destination network address.

b. In the Dest Addr Mask box, type the subnet mask.

This address is used to match the destination IP address in the packet's IP header.

5 For the source network address, do the following:

a. In the Src Addr box, type the source network address.

b. In the Src Addr Mask box, type the source network subnet mask.

This is the IP address to match against the packet's source IP address.

6 In the DSCP field, do one of the following:

a. Enter 0x20.

b. Choose Ignore.

For packets with a DSCP of 0x20.

The DSCP value in the packet is ignored.

NOTE: A DSCP of 0x20 equals 32 decimal.

7 In the Protocol field, choose TCP.

When you select TCP, you specify that only TCP packets be matched. If you select RSVP, all IP protocols are matched. If you select Match All, all IP protocols listed are matched.

8 In the Destination L4 box, enter 0.

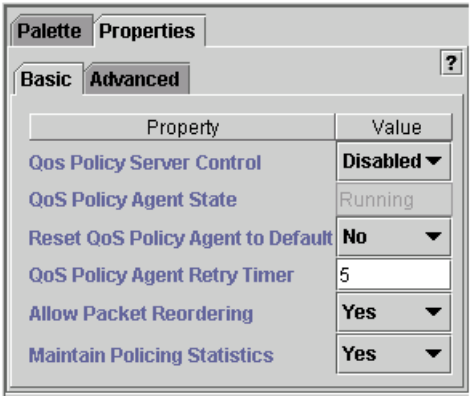
9 In the Source L4 box, enter 0.

Click Task list to return to the list of tasks.

Maintaining policing statistics

You can configure the Business Policy Switch to maintain and display statistics on QoS policies. Statistics are only maintained for policies created while this feature is enabled.

Note: Maintaining policy statistics uses additional filter resources in the Business Policy Switch. With the policy statitics feature enabled, you cannot configure as many filters as when it is disabled.



1 In the navigation pane, expand the switch and select QoS icon.

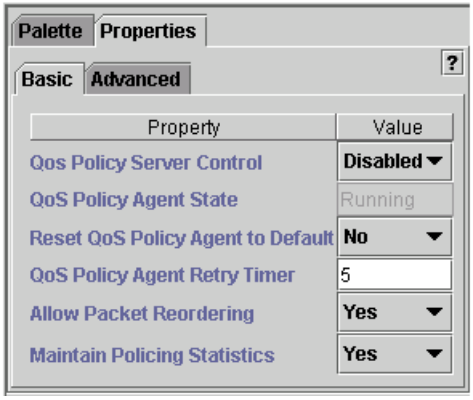
2 In the Properties tab, click the Basic tab.

3 In the Maintain Policing Statistics box, choose either Enable or Disable.

Allowing or denying packet reordering

Support for certain per-hop behaviors requires that packets within a flow not be reordered when transmitted. You can choose either of two options for packet reordering:

- Yes—Allows full flexibility of assigning packet to egress queue.
- No—Agent verifies that in-profile and out-of-profile actions associated with the flow do not cause packets from same flow to be assigned to different egress queues.



1 In the navigation pane, expand the switch and select QoS icon.

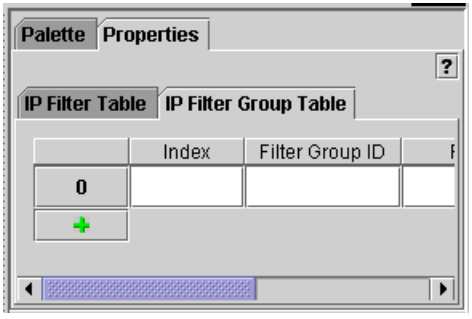
2 In the Properties tab, click the Basic tab.

3 In the Allow Packet Reordering box, choose either Enable or Disable.

Setting up filter groups

1 In the navigation pane, expand the switch and select QoS > IP Classification.

2 Click the IP Table Filter tab.



3 In the Filter Group ID box, enter a label, for example, IPacket.

NOTE: Do not leave spaces in your naming entry.

This unique identification label distinguishes this filter group from other filter groups.

4 In the Filter Order box, enter a number, for example, `1`.

This number establishes the evaluation order of filters in the group.

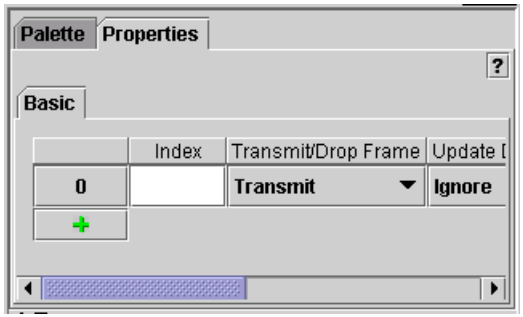
5 Define the Layer 2 filter.

6 Define the Layer 2 filter group.

Click Task list to return to the list of tasks.

Configuring actions

1. In the navigation pane, expand the switch and select QoS > Action table.
2. Click the Properties tab.



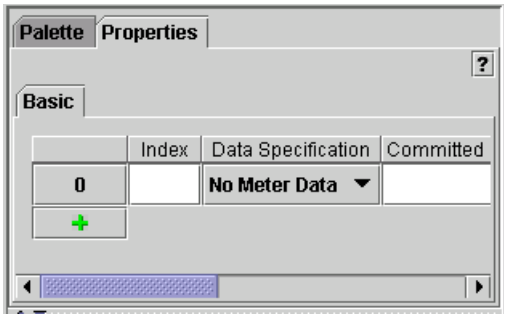
3. In the Index box, enter Generic.
4. In the Drop box, choose True or False.
5. In the Update DSCP field, enter `47,0x2F`.

   This entry changes the DSCP value to the decimal value 47 in the match packet.
6. In the Set Drop Precedence box, select Use Defaults.
7. In the Update Priority box, select Priority 1.

   Priority 1 specifies a low priority.

Configuring meters

1. In the navigation pane, expand the switch and select QoS > Meter Table.
2. Click the Properties tab.
3. Enter the properties values.



Click Task list to return to the list of tasks.

Configuring policies

1 In the navigation pane, expand the switch and select QoS > Policy Table.

2 Click the Properties tab.

3 In the Index box, enter IPpolicy.

NOTE: You cannot have spaces in the naming field.

This entry is a unique name to identify this target.

4 In the Filter Group ID box, enter IP Filter Group.

This entry is the filter group that will be associated with this policy.

5 In the Filter Group Type box, select an entry, for example, choose IPacket.

This entry is the filter group you created in the IP Classification Group page, IP Filter Group Table.

6 In the Role Combination box, select a roll combination.

This entry is the unique Role Combination that you created.

7 In the Order box, enter 1.

NOTE: Nortel Networks recommends that you consider an order numbering strategy (for the values in the Order field) as you configure policies. The policies in the Policy Table are arranged in ascending order according to value in the Order column. By establishing a policy ordering scheme in multiples of, for example, 10 (Order 10, Order 20, Order 30, Order 40, and so on), you are able to insert policies in the appropriate filter precedence location and still retain the precedence of the remaining policies.

8 In the Action Index box, enter a value.

Assigning mapping values

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Click Task list to return to the list of tasks.

Mapping Switch Console Interface commands to Preside NCS GUI properties

If you are familiar with the BayStack Console Interface (CI), use the following table to locate the Preside NCS properties that you want to configure.

To configure the properties on this CI Screen...	Select this item in the Preside NCS navigation pane...	... and choose this Properties tab
IP Configuration/Setup	Switch	Basic
SNMP Configuration	Switch > SNMP	Basic
System Characteristics	Switch	Import/Export
Switch Configuration > VLAN Configuration menu > VLAN Configuration	Switch > VLANs folder > VLAN	Basic
Switch Configuration > VLAN Configuration menu > VLAN Port Configuration	Switch > port member of VLAN	VLAN
Switch Configuration > VLAN Configuration menu > VLAN Display by Port	VLANs folder > VLAN	Basic
Switch Configuration > Port Configuration	Switch > port	Basic
Switch Configuration > Multilink Trunk Configuration	Switch > MLT groups > MLT	Basic
Switch Configuration > IGMP Configuration	VLAN > IGMP tab and IGMP tab on ports	Basic
Switch Configuration > IGMP > port	Switch > port	IGMP
Spanning Tree Configuration > Spanning Tree Group Configuration	Switch > STG Group > Spanning Tree group	Basic
Spanning Tree Configuration > Display Spanning Tree VLAN Membership	Switch > STG Group > Spanning Tree group	VLAN
Software Download	Switch	Image Download Wizard
Switch Configuration > EAPOL	Switch > Port	EAP
Switch Configuration > MAC Address Security	Switch MAC Security	Basic

Click Task list to return to the list of tasks.

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